

7. The apparatus of claim 94 wherein the fibers segments are oriented in a random orientation.

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9. The apparatus of claim 1 wherein the fibers in the fiber matrix are of a non-uniform length.

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13. The apparatus of claim 12 wherein the fiber matrix is applied circumferentially such that the fibers have a predetermined orientation at a predetermined angle with respect to an axis of the electrical element.

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17. The apparatus of claim 1 wherein the fiber matrix is applied vertically.

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22. An electrical apparatus comprising:  
an electrical element comprising a bonded disk stack having an outer surface, the bonded disk stack having a rating of at least 6 kV; and  
a reinforcing structure attached to the outer surface and constructed so as to enable the bonded disk stack to withstand at least one 100 kA impulse, wherein the reinforcing structure comprises a fiber matrix pre-impregnated with a resin, the fiber matrix comprising a pre-woven fabric.

23. The apparatus of claim 22 wherein the bonded disk stack comprises more than two MOV disks.

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26. The apparatus of claim 22 wherein the fiber matrix is applied vertically. --

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Please add claims 55-96.

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-- 55. The apparatus of claim 1 wherein the reinforcing structure has a uniform thickness.--

82 -- 56. The apparatus of claim 1 wherein the reinforcing structure is configured to reinforce a selected portion of an area of the monolithic MOV disk along a lengthwise axis of the disk. --

-- 57. The apparatus of claim 56 wherein the selected portion of the area comprises less than all of the area. --

-- 58. The apparatus of claim 56 wherein the selected portion of the area comprises an area excluding the ends of the monolithic MOV disk. --

-- 59. The apparatus of claim 56 wherein the selected portion of the area comprises an area including a center of the monolithic MOV disk. --

-- 60. The apparatus of claim 5 wherein the predetermined orientation is based upon the orientation of the fabric with respect to the axis. --

-- 61. The apparatus of claim 5 wherein the predetermined orientation is based upon a woven pattern of the fibers in the pre-woven fabric. --

-- 62. The apparatus of claim 5 wherein the predetermined orientation comprises one of approximately zero degrees and approximately ninety degrees with respect to the axis. --

-- 63. The apparatus of claim 13 wherein the predetermined angle is based upon the angle of the fabric with respect to the axis. --

-- 64. The apparatus of claim 13 wherein the predetermined angle is based upon a woven pattern of the fibers in the pre-woven fabric. --

-- 65. The apparatus of claim 13 wherein the predetermined angle comprises one of approximately zero degrees and approximately ninety degrees with respect to the axis. --

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-- 66. The apparatus of claim 22 wherein the bonded disk stack has a rating between approximately 6 kV and approximately 800 kV. --

-- 67. The apparatus of claim 22 wherein the electrical apparatus is constructed so as to withstand at least one 100 kA impulse. --

-- 68. The apparatus of claim 22 wherein the fibers in the fiber matrix are oriented in a predetermined orientation with respect to an axis of the electrical element. --

-- 69. The apparatus of claim 68 wherein the predetermined orientation is based upon the orientation of the fabric with respect to the axis. --

-- 70. The apparatus of claim 68 wherein the predetermined orientation is based upon a woven pattern of the fibers in the pre-woven fabric. --

-- 71. The apparatus of claim 68 wherein the predetermined orientation comprises one of approximately zero degrees and approximately ninety degrees with respect to the axis. --

-- 72. The apparatus of claim 68 wherein the fibers in the fiber matrix are oriented parallel to the axis. --

-- 73. The apparatus of claim 22 wherein the fibers in the fiber matrix are of a uniform length. --

-- 74. The apparatus of claim 22 wherein the fibers in the fiber matrix are of a non-uniform length. --

-- 75. The apparatus of claim 22 wherein the fibers in the fiber matrix comprise fiberglass. --

-- 76. The apparatus of claim 22 wherein the fibers in the fiber matrix comprise a non-conductive material. --

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s -- 77. The apparatus of claim 22 wherein the fiber matrix is applied circumferentially. --

-- 78. The apparatus of claim 77 wherein the fiber matrix is applied circumferentially such that the fibers have a predetermined orientation at a predetermined angle with respect to an axis of the electrical element. --

-- 79. The apparatus of claim 78 wherein the predetermined angle is based upon the angle of the fabric with respect to the axis. --

-- 80. The apparatus of claim 78 wherein the predetermined angle is based upon a woven pattern of the fibers in the pre-woven fabric. --

-- 81. The apparatus of claim 78 wherein the predetermined angle comprises one of approximately zero degrees and approximately ninety degrees with respect to the axis. --


-- 82. The apparatus of claim 78 wherein the predetermined angle is an angle less than approximately 50 degrees. --

-- 83. The apparatus of claim 82 wherein the angle is between approximately 3 degrees and approximately 10 degrees. --

-- 84. The apparatus of claim 77 wherein the circumferentially applied fiber matrix has a predetermined thickness. --

-- 85. The apparatus of claim 22 wherein the fiber matrix is applied vertically. --

-- 86. The apparatus of claim 85 wherein the vertical application comprises at least one piece of fiber matrix placed in a vertical orientation along an axis of the electrical element. --

 -- 87. The apparatus of claim 85 wherein the vertical application comprises a single piece of fiber matrix placed in a vertical orientation along an axis of the electrical element and having a sufficient width to cover the majority of an outer surface of the electrical element. --

-- 88. The apparatus of claim 22 wherein the reinforcing structure further comprises at least one layer of pre-impregnated fiber matrix applied circumferentially and at least one layer of pre-impregnated fiber matrix applied vertically. --

-- 89. The apparatus of claim 22 wherein the reinforcing structure has a uniform thickness. --

-- 90. The apparatus of claim 22 wherein the reinforcing structure is configured to reinforce a selected portion of an area of the bonded disk stack along a lengthwise axis of the bonded disk stack. --

-- 91. The apparatus of claim 90 wherein the selected portion of the area comprises less than all of the area. --

-- 92. The apparatus of claim 90 wherein the selected portion of the area comprises an area excluding the ends of the bonded disk stack. --